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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,798	09/17/2003	Kai Rossen	240427US0X	3767

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1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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SOLOLA, TAOFIQ A

ART UNIT	PAPER NUMBER
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1626

DATE MAILED: 05/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/663,798

Applicant(s)

ROSSEN ET AL.

Examiner

Taofiq A. Solola

Art Unit

1626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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Claims 1-20 are pending in this application.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification lacks adequate support for the claims. The specification fails to provide support that any or all known “bases” in claim 1, “solvents” in claim 8, “alkyl metal” and “metal amides” in claim 6, are applicable in the instant process. Also, the specification fails to disclose how the work-up is performed in an aqueous acid, claims 1, 10, 14. See the specification at page 5, lines 21-22. Applicant must show possession of the invention by describing it with all the claimed limitations. *Lookwood v. American Airlines Inc.* 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed Cir. 1997). By amending the claims to recite the specific “bases”, “solvents”, “alkyl metal”, and “metal amides”, having support in the specification the rejection would be overcome.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-20 are rejected as being indefinite for reasons set forth above under 35 U.S.C. 112, first paragraph. It is not possible to ascertain the metes and bounds of the claims.

The phraseology “and protecting the formyl group of said 2-furaldehyde with a protecting group” in claim 1, lines 3-4, render the claim confusing and therefore indefinite. It is not clear what applicant intends to claim.

Claims 1 and 14 are written in functional language and broader than the enabling disclosure in the specification. Therefore, claims 1-20 are indefinite. For example, claim 1 recites, “working-up”, isolating”, and “protecting”. Applicant cannot claim all processes of “working-up”, isolating”, or “protecting”, that may be applicable in the instant process. Applicant must claim only the process of “working-up”, isolating”, and “protecting” that embody applicant’s invention having support in the specification. The claims must recite the reaction conditions such as reagents, buffer, solvents, pH, etc. that are applicable in the reactions. Under US patent practice a process claim must recite “how” the process is performed not “what” is done as in the instant. See the MPEP. In patent examination, it is essential for claims to be precise, clear, correct, and unambiguous. *In re Zletz*, 893 F.2d 319, 13 USPQ2d 1320 (Fed. Cir. 1989).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guerry et al., WO 96/16046.

Applicant claims a process of making 5-formyl-2-furylboronic acid comprising adding a base to a mixture of boric acid ester and protected 2-furaldehyde, working-up the mixture in acidic medium and isolating the product, which is recrystallized. In preferred embodiments, the boric acid is alkyl boric acid, the protecting group is O,O-acetal, the base is alkyl metal, the reaction temperature is  $-100$  to  $30^{\circ}\text{C}$ , the work-up temperature is  $-10$ - $70^{\circ}\text{C}$ , the ratio of base to protected furaldehyde is 1:1.6 and that of boric acid to protected furaldehyde is 1:1.8.

*Determination of the scope and content of the prior art (MPEP §2141.01)*

Guerry et al., teach a similar process wherein a solution of butyllithium (an alkyl metal base) is added to furfural diethyl acetate (a protected furaldehyde) in ether. A solution of trimethyl borate (an alkyl boric acid ester) is added to the reaction mixture, working-up the reaction mixture in (HCl) acid, isolating the product and recrystallizing the product in water. The reaction temperature is between  $-40^{\circ}\text{C}$  to  $25^{\circ}\text{C}$ , the work-up is at  $0^{\circ}\text{C}$ , the ratio of base to protected furaldehyde is 1:1.6 and that of boric acid to protected furaldehyde is 1:1.8. See line 30, page 29 to page 30, line 6.

*Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)*

The difference between the instant invention and that of Guerry et al., is that applicant add a base to a mixture of boric acid ester and protected furalaldehyde instead of adding boric acid ester to a mixture of base and protected furalaldehyde by Guerry et al. Also, applicant is claiming the reaction temperature of  $-100$  to  $30^{\circ}\text{C}$ , the work-up temperature of  $-10$ - $70^{\circ}\text{C}$ , instead of  $-40^{\circ}\text{C}$  to  $25^{\circ}\text{C}$  and  $0^{\circ}\text{C}$  respectively, by Guerry et al.

*Finding of prima facie obviousness---rational and motivation (MPEP 2142.2413)*

However, adding a base to a mixture of boric acid ester and protected furalaldehyde instead of adding boric acid ester to a mixture of base and protected furalaldehyde is a modification within capability of one skilled in the art though it results in higher yield of the product. *In re Aller*, 105 USPQ 233 (CCPA, 1955). See *In re Mostovych*, 144 USPQ 38 (CCPA, 1964). Also, temperature ranges of  $-100$  to  $30^{\circ}\text{C}$  and  $-10$ - $70^{\circ}\text{C}$  embrace  $-40^{\circ}\text{C}$  to  $25^{\circ}\text{C}$  and  $0^{\circ}\text{C}$  respectively. Therefore, the instant invention is prima facie obvious from the teaching of Guerry et al. One of ordinary skill in the art would have known to modify the process of Guerry et al., at the time this invention was made. The motivation is from the teaching of Guerry et al., and because the modification is within routine effort of an artisan.

***Specification***

The specification appears to be a literal translation from a foreign document, and replete with errors. For example, see page 4, lines 1-2 and 11-12. At page 8, lines 4-6, the phraseology “5-formyl-2-furylboronic acid . . . stable at room temperature for more than a year” is idiomatic. The number of EP Application incorporated by reference on lines 9-10, page 8, is not disclosed, and the incorporation is not in accordance with the MPEP, which states as follows:

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A mere reference to another application, publication or patent is not an incorporation of anything therein into the application containing such reference for the purpose of satisfying the requirement of 35 USC 112, first paragraph. *In re de Seversky*, 474 F.2d 671, 177 USPQ 144 (CCPA 1973). Particular attention should be directed to the subject matter and the specific portions of the referenced document where the subject matter being incorporated may be found. MPEP 608.01(p).

If the document is a pending US application: prior to allowance of an application that incorporates essential material by reference to a pending US application, if the referenced application has not been published or issued as a patent, applicant is required to amend the disclosure of the referencing application to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating the amendment consists of the same material incorporated by reference in the referencing application. MPEP 608.01(p).

### ***Telephone Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Taofiq A. Solola whose telephone number is (571) 273-0709.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Joseph McKane, can be reached on (571) 272-0699. The fax phone number for this Group is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1600.

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TAOFIQ SOLOLA  
PRIMARY EXAMINER  
Group 1626

April 27, 2005